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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/994,540

11/27/2001

Lei Cao

MH-5081

8185

7590

06/10/2005

Patent Department

Mitsubishi Electric Research Laboratories, Inc.

201 Broadway

Cambridge, MA 02139

EXAMINER

LUGO, DAVID B

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 06/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/994,540

Applicant(s)

CAO ET AL

Examiner

David B. Lugo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 6, 13, 14 and 16 is/are rejected.
- 7) ☒ Claim(s) 2-5, 7-12 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/27/01.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement (IDS) submitted on 11/27/01 was considered. The Examiner has changed the patent number of the U.S. Patent to Seshadri listed in the IDS, from "5,236,033" to --5,263,033-- to correct a transposition error.

### *Drawings*

UP 2. The drawings are objected to because the text label of the block numbered 250 in Fig. 2b should be changed to "Best Channel Updater" in order to correspond with page 10, line 5 of the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

3. The disclosure is objected to because of the following informalities:

Page 12, line 18, "method 200" should be corrected as reference number 200 corresponds to a system as indicated in page 8, line 6 and shown in Figure 2a.

***Claim Objections***

4. Claims 3-5, 7-10 and 15 are objected to because of the following informalities:

- a. Claim 3, line 5, "via a deal" should be --via a delay--.
- b. Claim 4, line 6, after "channel selector", the term "connected" should be deleted.
- c. Claim 7, line 4, --a-- should be inserted before "minimum path metric".
- d. Claim 8, lines 2-3, "multiple estimate" should be --multiple estimates--.
- e. Claim 8, line 3, "best channel is selected" should be --best channel selected--.
- f. Claim 15, line 1, "delay is a less" should be --delay is less--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 6, 13, 14 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Parr et al. U.S. Patent 5,872,816.

7. Regarding claims 1 and 16, Parr et al. disclose a system for coherent blind demodulation in Figure 3 comprising means for estimating a plurality of channels (channel determination/error

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estimation module 60) using received symbols (col. 5, lines 44-48), means for selecting a best channel (channel selection 64) from the estimated plurality of channels (col. 6, lines 1-3), and means for detecting symbols received only on the best channel (distortion elimination module 72) where only the best channel is updated in a single pass in channel selection correction module 68.

8. Regarding claim 6, Parr et al. disclose that the means for estimating the plurality of channels and the means for selecting the best channel determine the best channel based on minimum path metrics and channel variations measured in a Viterbi trellis (col. 6, lines 9-67).

9. Regarding claim 13, the channel is updated in only one pass of a Viterbi trellis (col. 6, line 63 to col. 7, line 20).

10. Regarding claim 14, updating the best channel is considered to be delayed after detecting symbols on the best channel.

#### ***Allowable Subject Matter***

11. Claims 2-5, 7-12 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and rewritten to overcome the objections set forth in this Office action.

#### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Polydoros et al. U.S. Patent 5,432,821 disclose a system including a plurality of channel estimators where a best survivor as a function of a maximum likelihood is selected.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to David B. Lugo whose telephone number is 571-272-3043. The examiner can normally be reached on M-F; 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Lugo  
6/7/05

  
**KHAI TRAN**  
**PRIMARY EXAMINER**